FIRE PREVENTION AND BUILDING SAFETY COMMISSION
Department of Homeland Security

Written Interpretation of the State Building Commissioner

Interpretation #: CEB-2022-33-2014 IBC-714.4.1.2 Exc.7

Building or Fire Safety Law Interpreted
675 IAC 13-2.6 2014 Indiana Building Code, Section 714.4.1.2 Membrane penetrations. Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 714.4.1.1.1 or 714.4.1.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* shall not be reduced.
Exceptions: *[Exceptions 1-6 omitted for lack of relevance to the request.]*

7. The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a *fire-resistance-rated* wall assembly, provided that all penetrating items through the double top plates are protected in accordance with Section 714.4.1.1.1 or 714.4.1.1.2. The *fire-resistance rating* of the wall shall not be less than the rating of the horizontal assembly.

Issue
Whether a vertical assembly consisting of double stud cavities separated by an enclosed and inaccessible air space of indeterminate size qualifies as a "wall assembly" for the purposes of applying Section 714.4.1.2, Exception 7 of the *2014 Indiana Building Code* (IBC).

Interpretation of the State Building Commissioner
Yes, a vertical assembly consisting of double stud cavities separated by an enclosed and inaccessible air space of indeterminate size qualifies as a "wall assembly" for the purposes of applying Section 714.4.1.2, Exception 7 of the *2014 IBC*, provided:

1. The assembly as a whole meets the fire-resistance rating requirement specified in Exception 7;
2. The top of the air space in the assembly is separated from the horizontal assembly above by construction no less fire-resistant than the remainder of the ceiling membrane that the wall assembly interrupts; and
3. Any penetrations through the barrier between the air space and the horizontal assembly above meet the requirements of Sections 714.4.1.1.1 and 714.4.1.1.2, as applicable.

Rationale
Wall assemblies can take a variety of forms, including double-stud configurations in which the stud-framed panels are separated by an inaccessible air space. If the assembly as a whole meets the requirements named in Exception 7 of Section 714.4.1.2, it is acceptable. Those requirements are:

- The assembly must carry a fire-resistance rating not less than that of the horizontal assembly above it (condition #1 above); and
- The top of the assembly must provide adequate separation from the horizontal assembly above it (conditions #2 and #3 above).

Regarding the first of these requirements, double-stud composite wall assemblies exist that have been tested and listed for specific fire-resistance ratings by qualified agencies, and any such listed assembly must be considered acceptable for this use if its fire-resistance rating is not less than that of the horizontal assembly above it. If the testing agency's listed assembly shows no required minimum or maximum thickness of the air space between panels, and it shows no materials lining that air space (or if the listing identifies material installed in that location as optional), then the size of the air space is irrelevant, and the interior materials are not required.

Regarding the second requirement, the code assures protection of the horizontal assembly where interrupted by the wall by virtue of its requirement to protect any penetrations of the double top plate of the wall in accordance with Sections 714.4.1.1.1. and 714.4.1.1.2. In the case of a wall assembly with an interior air space between the stud panels, there is no double 2X dimension lumber top plate at the top of the air space, therefore other protection must be provided in this area. Logic dictates that a ceiling membrane at its top is acceptable if it provides the same (or better) protection as the ceiling membrane installed outside the confines of the wall assembly.

Finally, it must be noted that recently the Commission has granted many variance requests to eliminate the requirement that the interrupting wall assembly have a fire-resistance rating equal to or greater than the ceiling membrane it interrupts, if the wall assembly is sheathed in Type X gypsum board. This is consistent with the revisions introduced in the 2015 ICC model code. In any case in which such a variance has been granted, the

only effect on this interpretation is the elimination of the requirement for a fire-resistance rating for the wall assembly. There is still no prohibition on a variable-sized air space, and no requirement for interior sheathing of that space.

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